

CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 113

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

December 1, 1956

Your mills are identified by the
following code letters in this report:

Mill	Code Letter
Jacksonville	H
Valdosta	N

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 113

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

December 1, 1956

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

In conjunction with the F.K.I. Continuous Baseline Study, The Institute of Paper Chemistry has been directed to identify the participating mills by means of a scrambled system of code letters. Under this system, which was initiated in Progress Report 105, each mill is identified by a code letter different from that used for the previous month.

During the period from November 1 to November 30, eighty-eight different sample lots of 42-lb. Fourdrinier kraft linerboard were submitted by seventeen different F.K.I. mills to The Institute of Paper Chemistry for testing. A tabulation of the number of samples classified according to mill may be seen in Table I.

TABLE I
DISTRIBUTION OF 42-LB. LINERBOARD SAMPLES

Mill Code	Samples Submitted
A	5
B	6
C	6
D	4
E	2
F	8
G	8
H — <i>Jan</i> —————	9
I	8
J	2
K	2
L	1
M	9
N — <i>Val</i> —————	0
O	2
P	8
Q	4
S	<u>4</u>
Total	88

These sample lots were tested for basis weight, caliper, bursting strength, and Elmendorf tear. The average strength results for each mill may be seen in Table II and are graphically presented in Figures 1 to 5. In addition to a comparison of the mill averages for the various tests, Table II also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. The cumulative F.K.I. average is based on the results for the previous twelve months excluding the current period. Hence, in the case of the current report, it covers the period from November 1, 1955, to October 31, 1956. The F.K.I. indexes are obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

The F.K.I. index provides a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.1 lb., and the cumulative F.K.I. average basis weight is 43.0 lb. Hence, the index for basis weight determined in per cent as indicated above is 100.2. This signifies that the current average basis weight is slightly higher than the cumulative average.

A comparison of the results in Table II and Figure 1 shows that the average basis weight results for all mills except L conform to the 42-lb. specification set forth in Rule 41. Mills G and M share the highest average basis weight, it being 44.2 lb. or approximately 5.2% higher than the 42-lb. specification. On the other hand, Mill L has the lowest average basis weight, it being 41.2 lb. or approximately 1.9% lower than the 42-lb. specification.

The amount by which the mills vary from the 42-lb. specification is as follows:

Mill Code	Per Cent
A	+2.4
B	+3.3
C	+2.4
D	+1.2
E	+1.0
F	+3.8
G	+5.2
H — <i>gas.</i>	+2.4
I	+1.4
J	+2.6
K	+4.0
L	-1.9
M	+5.2
N — <i>val.</i>	--
O	+4.5
P	+2.6
Q	+3.6
S	+1.4

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicates that the basis weight results have remained at the same level--i.e., 43.1 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the mill averages vary from a low of 11.6 points for Mill D to a high of 14.0 points for Mill G. The current F.K.I. average is 12.7 points, the same as the cumulative F.K.I. average.

The average bursting strength values obtained for each mill are graphically presented in Figure 3. It may be observed in Table II and Figure 3 that the average bursting strength values for the various mills range from a low of 105 for Mills J and S to a high of 116 for Mills C and D. The current F.K.I. average bursting strength is 109 p.s.i.g.,

slightly higher than the cumulative F.K.I. average of 108 p.s.i.g.

A graphic comparison of the Elmendorf tear results for the various mills is given in Figure 4 and 5. The data of Table II show that Mill ^{Gr}H had the highest average machine direction tear value of 377 units whereas Mill O has the lowest value of 293 units. Mill S has the highest cross-machine direction tear value of 402 units, and Mills E and J share the lowest value of 344 units. It may be noted that the current F.K.I. average machine and cross-machine direction tear results are slightly lower than the respective cumulative averages.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. average for caliper is the same as the cumulative F.K.I. average, whereas the current F.K.I. averages for basis weight and bursting strength are slightly higher than the cumulative averages, and the current F.K.I. averages for machine and cross-machine direction Elmendorf tear are slightly lower than the respective cumulative F.K.I. averages.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XX for Mills A to S, respectively. In addition to the current and cumulative averages, the mill factor and mill index are given for each mill. The cumulative mill average is the average test result obtained on the samples submitted by the particular mill for the previous twelve months excluding the current period. The mill factor and the mill index are obtained as follows:

$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor (\%)}$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index (\%)}$$

The mill factor and the mill index serve as a ready means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. The reports also contain a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry.

The results obtained on the special drum stock may be seen in Table XXI.

It may be noted in Tables III through XXI that the test data include information about the sheet finish. The summarized results for the mills which submitted sample lots during the current period are as follows:

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
A	5 ^a		
B	6		
C	6		
D	4		
E	2 ^a		
F	8		
G	8		
H — <i>jax.</i> —	9		
I	8		
J	2		
K	2		
L	1 ^a		
M	9		
N — <i>Val.</i> —	No samples submitted		
O	2		

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
P	8 ^a		
Q	4		
S	4 ^a		
R ^b	No samples submitted		

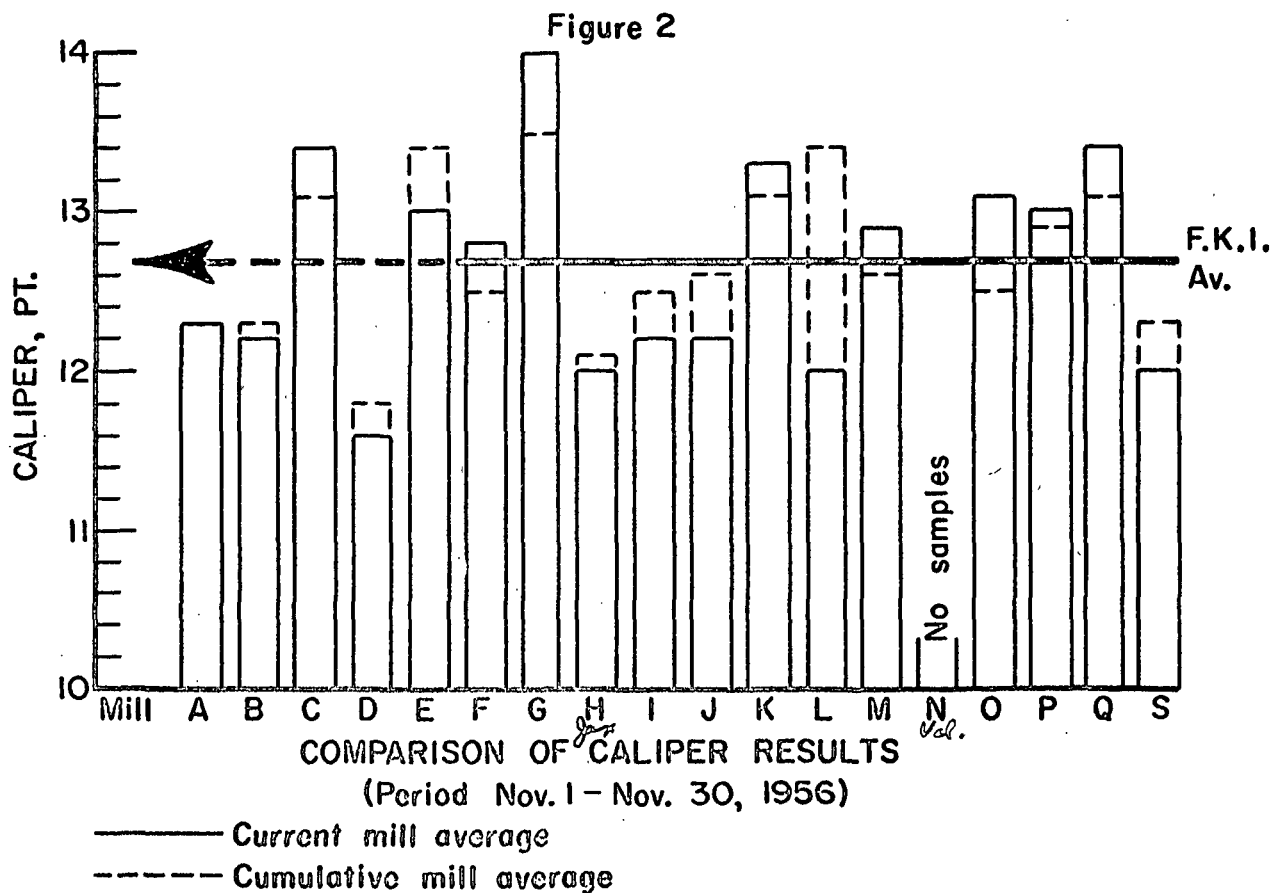
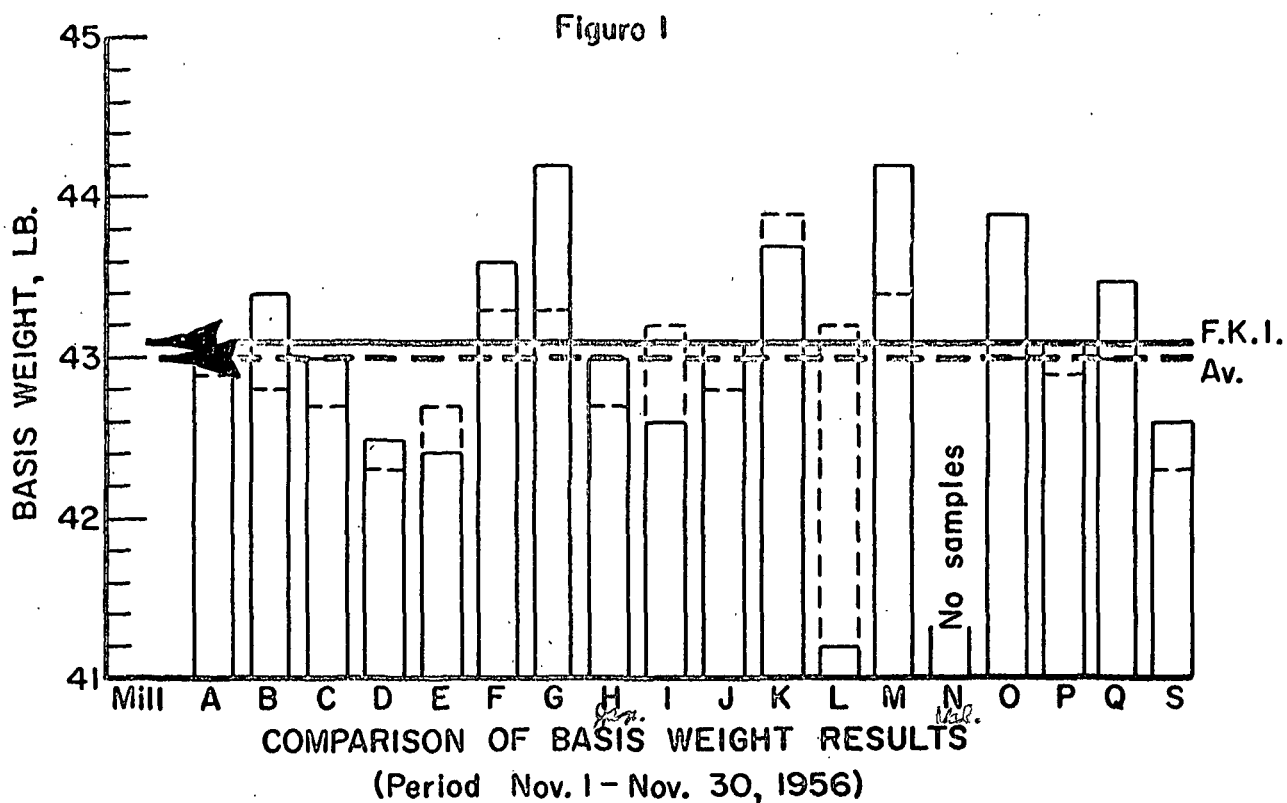
^a One side only
^b Drum linerboard

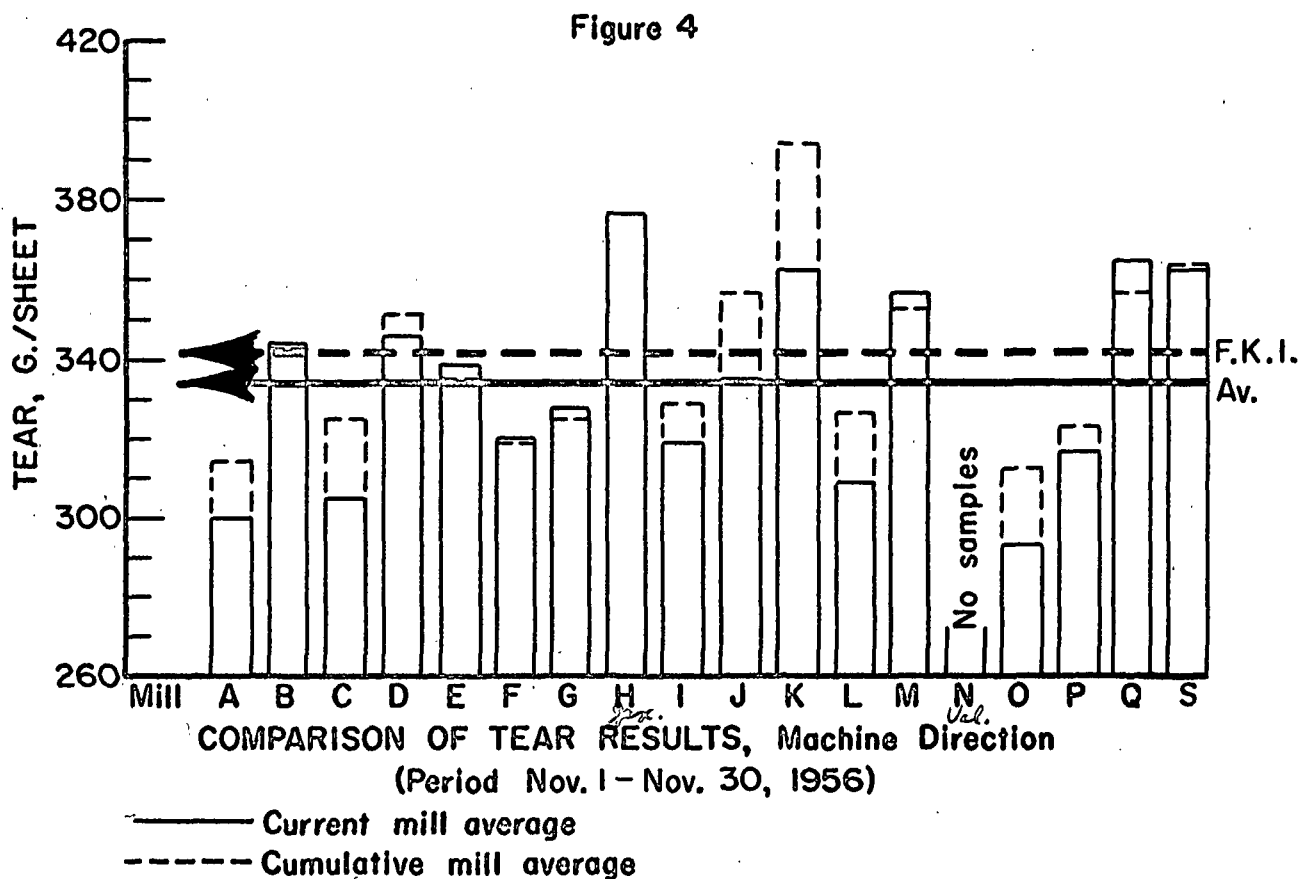
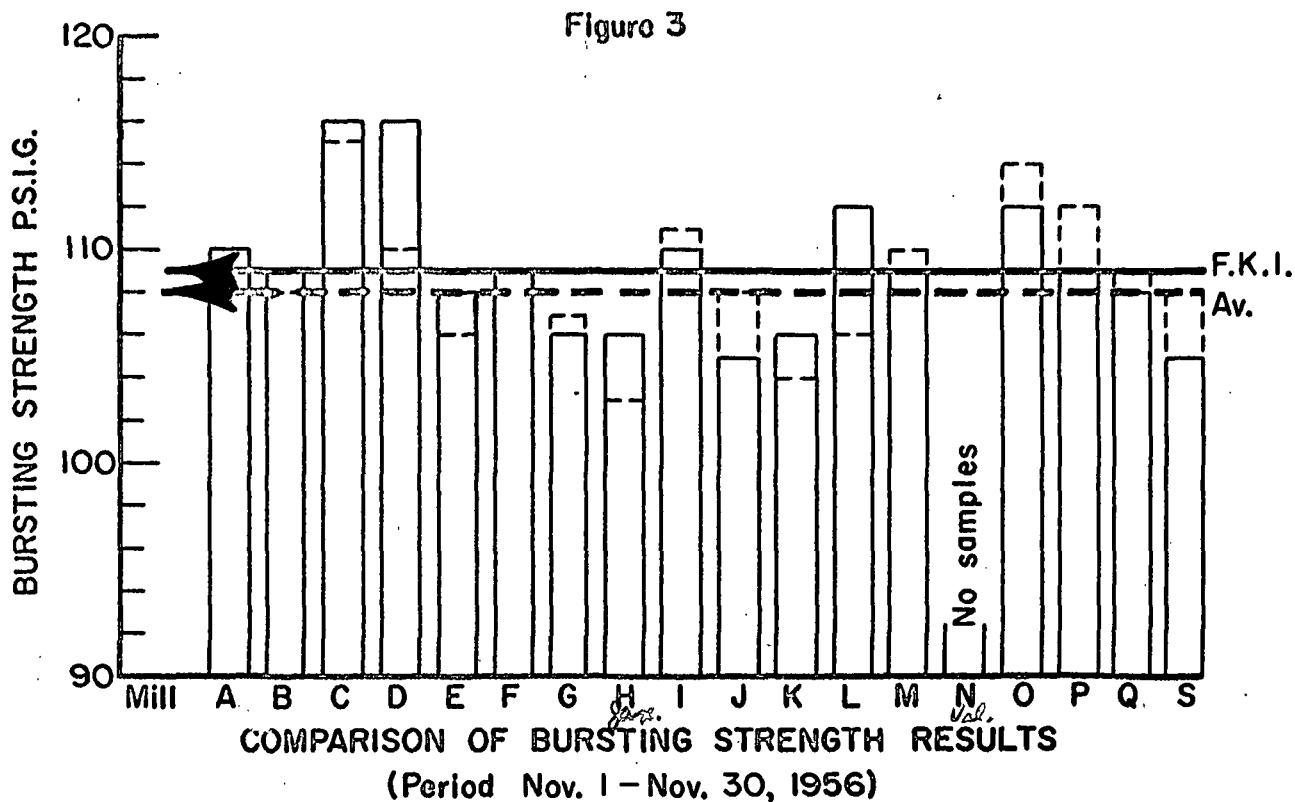
The results indicate that a majority of the mills are using
a water finish on their 42-lb. linerboard.

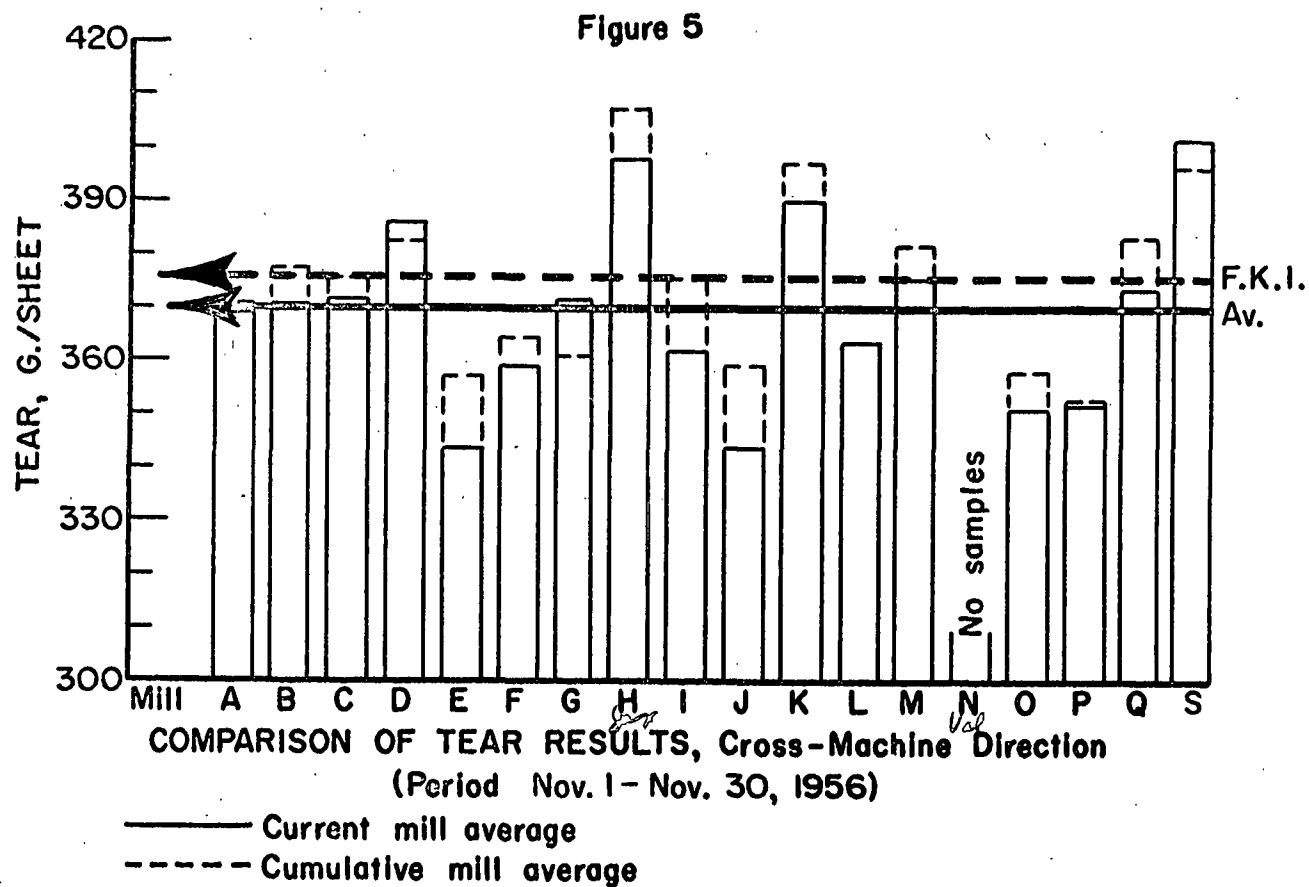
TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--NOVEMBER 1 THROUGH NOVEMBER 30, 1956

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	In Machine	Elmendorf tear, g./sheet Cross Machine
A	43.0	12.3	110	300	369
B	43.4	12.2	109	344	371
C	43.0	13.4	116	306	372
D	42.5	11.6	116	346	386
E	42.4	13.0	108	339	344
F	43.6	12.8	109	320	359
G	44.2	14.0	106	328	372
H	43.0	12.0	106	377	398
I	42.6	12.2	110	319	362
J	43.1	12.2	105	335	344
K	43.7	13.3	106	362	390
L	41.2	12.0	112	309	364
M	44.2	12.9	109	357	376
N	No samples submitted.				
O	43.9	13.1	112	293	351
P	43.1	13.0	109	317	352
Q	43.5	13.4	108	364	374
S	42.6	12.0	105	362	402
Current FKI Average:	43.1	12.7	109	334	370
Cumulative FKI Average:	43.0	12.7	108	342	376
FKI Index, %	100.2	100.0	100.9	97.7	98.4







SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956

TABLE III

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
172561	WFLS	11/13/56	11/ 3/56	1	43.6	42.2	42.8	13.0	11.9	12.3	130	90	112	360	248	299 ^a
172539	WFLS	11/12/56	11/ 6/56	1	44.2	43.0	43.7	12.9	11.6	12.2	128	88	109	328	248	279
172747	WFLS	11/23/56	11/15/56	1	43.8	42.0	42.3	13.1	11.5	12.4	124	92	106	368	248	310
172761	WFLS	11/26/56	11/17/56	1	43.8	41.8	42.7	13.3	11.8	12.3	129	84	108	360	264	307
172762	WFLS	11/26/56	11/19/56	1	44.2	43.0	43.8	12.9	11.8	12.2	134	96	114	360	272	305
Current Mill Average:					43.0			12.3			110			300		
Cumulative Mill Average:					42.9			12.3			108			314		
Mill Factor, %					100.2			100.0			101.9			95.5		
Mill Index, %					100.0			96.9			101.9			87.7		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE IV
MILL B -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I., gage			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
172687	W.F.	11/19/56	11/ 3/56	2	44.0	42.0	42.8	13.0	12.0	12.4	125	87	105	416	288	348 ^a
172688	W.F.	11/19/56	11/ 3/56	2	45.8	42.2	43.7	12.9	11.0	11.9	126	89	104	400	280	344
172763	W.F.	11/26/56	11/ 5/56	2	45.8	42.2	43.9	12.7	11.0	12.1	136	90	113	368	272	325 ^a
172764	W.F.	11/26/56	11/ 6/56	2	44.2	42.4	43.9	12.9	11.4	12.4	141	85	113	448	304	373 ^a
172765	W.F.	11/26/56	11/13/56	2	44.4	42.4	44.0	12.8	11.9	12.2	131	84	112	416	312	355 ^a
172766	W.F.	11/26/56	11/14/56	2	43.0	40.0	42.2	13.0	12.0	12.4	140	70	108	352	256	317
Current Mill Average:					43.4			12.2			109			344		
Cumulative Mill Average:					42.8			12.3			108			343		
Mill Factor, %					101.4			99.2			100.9			100.3		
Mill Index, %					100.9			96.1			100.9			100.6		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE V

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
172365	W.F.	11/ 1/56	10/ 8/56	1	44.4	42.4	43.4	14.1	12.3	13.2	141	100	121	368	232	324 ^a
172366	W.F.	11/ 1/56	10/11/56	1	44.0	42.4	43.4	14.4	12.3	13.4	133	100	115	344	272	303
172680	W.F.	11/19/56	10/15/56	1	43.0	40.4	41.9	13.7	12.2	13.1	132	98	112	336	264	291 ^a
172681	W.F.	11/19/56	10/19/56	1	44.0	43.0	43.7	14.0	12.6	13.4	135	84	111	376	272	327
172682	W.F.	11/19/56	10/24/56	1	42.2	41.6	42.0	14.0	12.8	13.4	139	100	114	328	240	277
172683	W.F.	11/19/56	10/28/56	1	44.2	42.0	43.4	14.7	13.2	13.9	142	93	121	384	272	316
Current Mill Average:					43.0			13.4			116			306		
Cumulative Mill Average:					42.7			13.1			115			325		
Mill Factor, %					100.7			102.3			100.9			94.2		
Mill Index, %					100.0			105.5			107.4			89.5		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE VI

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. Gage		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
172387	W.F.	11/ 5/56	10/ 1/56	4	43.6	42.0	12.0	11.0	128	92	368	304
172388	W.F.	11/ 5/56	10/17/56	4	43.6	42.2	12.5	11.3	134	104	376	328
172389	W.F.	11/ 5/56	10/18/56	4	43.0	41.6	12.0	11.0	133	103	448	312
172390	W.F.	11/ 5/56	10/18/56	4	43.4	41.8	11.5	11.0	139	102	360	320
Current Mill Average:					42.5		11.6		116		346	
Cumulative Mill Average:					42.3		11.8		110		351	
Mill Factor, %					100.5		98.3		105.5		98.6	
Mill Index, %					98.8		91.3		107.4		101.2	
											386	
											383	
											100.8	
											102.7	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE VII
MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight,		Caliper,		Bursting Strength,		Elmendorf Tear,																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
					lb.		points		p.s.i., gage		g./sheet		In		Across																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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172383	WFLS	11/ 5/56	10/31/56	2	44.0	42.0	42.8	14.1	13.0	13.4	130	77	99	408	320	360 ^a	448	296	348 ^a																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE VIII
MILL F -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I., gage		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
172426	W.F.	11/ 7/56	10/28/56	1	44.0	42.0	13.5	12.4	132	80	105	352
172427	W.F.	11/ 7/56	10/29/56	1	45.0	43.8	13.0	12.0	128	85	110	344
172503	W.F.	11/ 9/56	11/ 4/56	2	44.0	42.0	13.0	12.0	118	84	104	368
172504	W.F.	11/ 9/56	11/ 5/56	1	43.8	42.2	12.9	11.5	128	84	110	328
172724	W.F.	11/21/56	11/14/56	1	44.0	43.6	13.7	12.9	131	94	111	400
172725	W.F.	11/21/56	11/16/56	2	44.0	43.0	13.3	12.5	134	61	110	384
172767	W.F.	11/26/56	11/18/56	2	44.2	43.2	13.5	12.8	129	89	112	344
172768	W.F.	11/26/56	11/19/56	2	44.2	44.0	13.0	12.0	129	86	107	400
Current Mill Average:					43.6		12.8		109		320	
Cumulative Mill Average:					43.3		12.5		109		319	
Mill Factor, %					100.7		102.4		100.0		100.3	
Mill Index, %					101.4		100.8		100.9		93.6	
											359	
											365	
											98.4	
											95.5	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE IX

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I., gage		Elmendorf Tear, g./sheet									
					Max.	Min.	Av.	Max.	Min.	Av.	In		Across							
											Max.	Min.	Max.	Min.	Av.					
172531	W.F.	11/12/56	10/22/56	1	44.2	43.0	43.6	14.4	13.1	13.7	126	73	106	376	304	335 ^a	432	336	379 ^a	
172532	W.F.	11/12/56	10/23/56	1	45.8	43.0	44.4	15.0	13.8	14.5	123	86	102	400	256	334	400	320	359 ^a	
172505	W.F.	11/ 9/56	10/23/56	1	46.6	44.0	45.6	14.9	13.5	14.4	120	90	104	384	304	337	416	352	394 ^a	
172506	W.F.	11/ 9/56	10/24/56	1	44.2	42.6	43.9	14.1	13.6	14.0	122	88	107	360	280	316	400	336	373	
172533	W.F.	11/12/56	10/30/56	1	45.8	42.4	44.7	15.0	13.8	14.2	126	83	104	376	264	318	408	352	379 ^a	
172534	W.F.	11/12/56	11/ 2/56	1	46.0	43.8	44.6	14.1	13.0	13.6	124	93	108	392	264	339	432	344	381 ^a	
172535	W.F.	11/12/56	11/ 3/56	1	44.4	42.0	43.8	14.2	13.4	13.9	126	88	109	352	288	321 ^a	400	304	363 ^a	
172536	W.F.	11/12/56	11/ 4/56	1	43.6	42.4	43.0	14.1	13.0	13.5	122	87	104	368	280	321 ^a	416	312	349 ^a	
Current Mill Average:					44.2		14.0		106		328		372							
Cumulative Mill Average:					43.3		13.5		107		325		361							
Mill Factor, %					102.1		103.7		99.1		100.9		103.0							
Mill Index, %					102.8		110.2		98.1		95.9		98.9							

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE X
Andersonville
MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		Elmendorf Tear, g./sheet		Across	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
172369	W.B.	11/ 1/56	10/17/56	-	43.0	40.0	12.0	10.8	133	90	109	336	381 ^a	432
172370	W.B.	11/ 1/56	10/19/56	-	43.8	41.0	12.0	10.8	125	93	107	400	346 ^a	416
172540	W.B.	11/12/56	10/29/56	-	44.2	40.4	12.6	11.5	137	83	106	392	347	432
172541	W.B.	11/12/56	10/30/56	-	44.0	42.0	12.8	11.5	131	78	105	456	386 ^a	472
172542	W.B.	11/12/56	10/31/56	-	44.0	42.0	12.5	11.6	130	85	110	432	344	448
172543	W.B.	11/12/56	11/ 6/56	-	45.8	42.2	13.0	11.8	110	66	96	440	360	456
172639	W.B.	11/19/56	11/ 6/56	-	45.4	42.2	12.6	12.0	126	91	110	408	391	448
172690	W.B.	11/19/56	11/ 8/56	-	44.8	42.2	12.9	12.0	115	90	102	408	360	456
172691	W.B.	11/19/56	11/ 9/56	-	44.0	42.0	12.8	12.0	120	71	104	416	336	448
Current Mill Average:					43.0		12.0		106		377		398	
Cumulative Mill Average:					42.7		12.1		103		377		407	
Mill Factor, %					100.7		99.2		102.9		100.0		97.8	
Mill Index, %					100.0		94.5		98.1		110.2		105.9	

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XI
MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. Page			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
172367	W.F.	11/ 1/56	10/13/56	1	43.6	42.0	43.0	13.1	12.3	12.9	135	84	104	352	280	321
172368	W.F.	11/ 1/56	10/15/56	2	42.6	41.6	42.2	11.9	10.5	11.2	135	87	113	336	256	296
172399	W.F.	11/ 6/56	10/18/56	2	43.0	40.2	41.8	11.9	10.3	11.1	125	97	110	344	264	302 ^a
172400	W.F.	11/ 6/56	10/25/56	1	43.6	41.6	42.2	13.2	11.2	12.5	130	85	109	360	272	321 ^a
172391	W.F.	11/ 5/56	10/25/56	1	43.4	40.4	42.2	13.0	11.2	12.3	133	90	114	360	296	327 ^a
172392	W.F.	11/ 5/56	10/29/56	2	44.2	42.2	43.0	13.3	12.0	12.5	137	80	111	392	264	333 ^a
172393	W.F.	11/ 5/56	10/30/56	2	43.8	42.0	43.1	13.1	11.9	12.4	135	83	112	400	256	320 ^a
172562	W.F.	11/13/56	10/31/56	2	44.0	42.4	43.2	13.9	12.0	12.7	140	80	109	416	264	332 ^a
Current Mill Average:					42.6			12.2			110			319		
Cumulative Mill Average:					43.2			12.5			111			329		
Mill Factor, %					98.6			97.6			99.1			97.0		
Mill Index, %					99.1			96.1			101.9			93.3		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA---NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XII

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i., gage			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
172537	W.F.	11/12/56	10/29/56	-	44.6	42.2	43.5	13.0	11.5	12.2	140	98	109	392	296	343 ^a
172538	W.F.	11/12/56	10/29/56	-	44.0	40.0	42.7	12.9	11.8	12.2	124	80	102	408	280	327 ^a
Current Mill Average:					43.1			12.2			105			335		
Cumulative Mill Average:					42.8			12.6			108			357		
Mill Factor, %					100.7			96.8			97.2			93.8		
Mill Index, %					100.2			96.1			97.2			98.0		
														344		
														359		
														312		
														392		
														312		
														312		
														344 ^a		
														344 ^a		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XIII

MILL K -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Calliper, points			Bursting Strength, P.S.I. Gage			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
172371	S.F.	11/1/56	10/26/56	7	44.4	40.6	43.0	13.5	12.1	12.7	139	80	112	416	336	365 ^a
172672	S.F.	11/16/56	11/14/56	7	46.0	43.6	44.3	14.5	13.5	13.9	126	80	101	440	312	359 ^a
Current Mill Average:					43.7			13.3			106			362		
Cumulative Mill Average:					43.9			13.1			104			394		
Mill Factor, %					99.5			101.5			101.9			91.9		
Mill Index, %					101.6			104.7			98.1			105.8		

TABLE XIV

MILL L -- 42-LB. LINERBOARD

172709	WFS	11/20/56	11/15/56	1	42.2	40.0	41.2	12.8	11.3	12.0	135	88	112	344	280	309	400	320	364 ^a
Current Mill Average:					41.2			12.0			112			309			364		
Cumulative Mill Average:					43.2			13.4			106			327			364		
Mill Factor, %					95.4			89.6			105.7			94.5			100.0		
Mill Index, %					95.8			94.5			103.7			90.4			96.8		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE XV

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight,		Caliper,		P.S.I. Gage		g./sheet		Elmendorf Tear,						
					lb.		points		Max. Min. Av.		Max. Min. Av.			In	Across				
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.				Av.	Max.	Min.	Av.
1172380	W.F.	11/ 5/56	10/31/56	-	46.0	43.4	44.5	13.3	12.6	13.0	138	93	112	400	288	360 ^a	432	336	391 ^a
1172381	W.F.	11/ 5/56	11/ 1/56	-	44.2	42.8	43.5	13.4	12.9	13.1	130	81	108	424	296	352	416	320	377 ^a
1172382	W.F.	11/ 5/56	11/ 2/56	-	44.2	43.6	44.0	13.6	12.9	13.2	129	92	110	464	320	380 ^a	464	360	397 ^a
1172528	W.F.	11/12/56	11/ 7/56	-	44.4	43.0	43.8	12.9	11.0	12.4	133	82	106	416	312	357 ^a	464	344	385 ^a
1172529	W.F.	11/12/56	11/ 8/56	-	45.8	44.0	44.9	13.1	11.3	12.7	135	100	115	392	304	357 ^a	432	360	383 ^a
1172530	W.F.	11/12/56	11/ 9/56	-	44.2	41.8	42.7	13.2	12.0	12.6	123	74	103	432	288	345 ^a	360	328	345 ^a
1172677	W.F.	11/19/56	11/14/56	4	45.8	43.4	44.4	14.0	12.8	13.3	134	92	112	392	304	341 ^a	432	344	376 ^a
1172678	W.F.	11/19/56	11/15/56	4	45.4	44.0	44.4	13.1	12.1	12.8	121	92	108	464	336	383 ^a	392	296	353 ^a
1172679	W.F.	11/19/56	11/16/56	4	46.0	44.4	45.6	13.7	12.9	13.2	135	81	107	384	296	341 ^a	400	352	375 ^a
Current Mill Average:							44.2		12.9			109				357		376	
Cumulative Mill Average:							43.4		12.6			110				352		382	
Mill Factor, %							101.8		102.4			99.1				101.4		98.4	
Mill Index, %							102.8		101.6			100.9				104.4		100.0	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XVI
Valencia
MILL N -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	In	Across
											Max.	Min.
					Av.		Av.		Av.		Av.	Av.

No samples submitted.

TABLE XVII

MILL O -- 42-LB. LINERBOARD

172397	W.F.	11/ 6/56	10/29/56	1	44.4	43.0	43.6	13.5	12.8	13.1	131	75	111	320	256	297	384	312	349 ^a
172398	W.F.	11/ 6/56	11/ 1/56	1	45.8	42.6	44.2	13.7	12.9	13.2	126	90	114	320	248	289 ^a	384	320	353 ^a
Current Mill Average:							43.9			13.1			112			293			351
Cumulative Mill Average:							43.0			12.5			114			312			358
Mill Factor, %							102.1			104.8			98.2			93.9			98.0
Mill Index, %							102.1			103.1			103.7			85.7			93.4

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XVIII

MILL P -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i., Edge			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
172363	WFLS	11/ 1/56	10/24/56	1	43.0	42.0	42.5	13.6	12.1	12.7	129	97	112	376	240	296
172364	WFLS	11/ 1/56	10/24/56	1	43.8	42.0	42.9	13.1	12.0	12.7	130	95	111	344	264	297
172394	WFLS	11/ 5/56	10/26/56	1	44.2	42.2	43.6	13.1	12.2	12.8	127	97	113	384	288	324 ^a
172395	WFLS	11/ 5/56	10/28/56	1	44.0	42.0	43.1	13.6	12.5	13.0	127	93	109	384	312	342
172396	WFLS	11/ 5/56	10/28/56	1	44.0	42.8	43.4	14.0	12.5	13.4	133	90	107	360	272	313
172502	WFLS	11/ 9/56	11/ 5/56	1	44.0	42.0	43.1	13.9	12.2	13.1	126	81	107	368	264	315 ^a
172726	WFLS	11/21/56	11/17/56	1	44.2	42.0	43.5	14.2	12.7	13.1	132	75	103	368	280	317
172727	WFLS	11/21/56	11/17/56	1	44.0	42.0	43.0	14.6	12.0	13.0	128	95	109	384	272	333
Current Mill Average:					43.1			13.0			109			317		
Cumulative Mill Average:					42.9			12.9			112			323		
Mill Factor, %					100.5			100.8			97.3			98.1		
Mill Index, %					100.2			102.4			100.9			92.7		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XIX

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	In	Across
172385	W.	11/ 5/56	10/11/56	4	45.0	43.4	14.4	13.1	126	92	424	320
172386	W.	11/ 5/56	10/24/56	4	45.6	43.8	13.9	12.9	123	97	384	336
172673	W.	11/16/56	10/30/56	4	44.0	42.0	13.8	13.0	128	94	424	352
172674	W.	11/16/56	11/ 7/56	4	44.0	42.0	13.5	13.0	111	90	424	312
Current Mill Average:					43.5		13.4		108		364	
Cumulative Mill Average:					43.0		13.1		109		357	
Mill Factor, %					101.2		102.3		99.1		102.0	
Mill Index, %					101.2		105.5		100.0		106.4	
											374	
											384	
											97.4	
											99.5	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XX

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Calliper, points			Bursting Strength, p.s.i.			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
172563	WFLS	11/13/56	11/ 3/56	1	43.8	42.2	42.8	12.0	11.2	11.7	131	91	109	416	304	348 ^a
172684	WFLS	11/19/56	11/ 6/56	1	43.8	41.8	42.2	12.5	11.8	12.2	123	82	100	392	312	347 ^a
172685	WFLS	11/19/56	11/10/56	1	44.0	42.2	43.1	12.6	11.8	12.1	127	81	107	472	312	397 ^a
172686	WFLS	11/19/56	11/ 9/56	1	42.8	42.0	42.2	12.8	11.9	12.2	122	88	105	416	312	357 ^a
Current Mill Average:					42.6			12.0			105			362		
Cumulative Mill Average:					42.3			12.3			108			363		
Mill Factor, %					100.7			97.6			97.2			99.7		
Mill Index, %					99.1			94.5			97.2			105.8		

TABLE XXI

MILL R -- MISCELLANEOUS

47-lb. Drum Linerboard

No samples submitted.

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. As may be noted in Table XXII, the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the conditioning periods varied considerably.

TABLE XXII

Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time, hr.	R.H., %	Temp., °F.	Time, hr.
A		None		48-53	70-75	--
B		None		50	73	24
C		None		40-80	78-88	--
D		None		50	73	4- 5
E	50	73	24	--	--	--
F		None		50	73	24
G	50	73	144-288	50	73	144-288
H	Jan	None		49-52	71-73	48
I	50	73	24	50	73	24
J		None		50	73	0.5
K	50	73	24	50	73	24
L	74	74	20	72	74	2
M	34-36	78	8	50	72	16
N	Val.		No samples submitted			
O	48-54	72--76	0.5	50	70	24-48
P		None		37-60	70-93	--
Q		None		55-58	72	--
S	50	73	24	50	73	24

A summary of the Institute and mill test results for the current period is shown in Table XXIII, and a comparison of differences between Institute and mill test results is given in Table XXIV for the current period and the two previous periods. The comparisons are given in Tables

XXV to XLIII, for the 42-lb. liner samples. A comparison of the special drum stock is given in Table XLIII. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XXIII and XXIV reveals the level of agreement between mill and Institute data for basis weight, caliper, bursting strength, and Elmendorf tear. Table XXIII shows the average difference between Institute and mill test results for all sample lots submitted by each mill for the current period. In addition, the maximum difference encountered in comparing the Institute and mill test results for a given sample lot is shown. In Table XXIV, the average differences shown for each test in Table XXIII have been calculated on a percentage basis for each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

It may be noted in Table XXIV that the maximum variation between the average basis weight results of the Institute and those of a given mill on corresponding samples is five per cent for the current period. By comparison, the maximum percentage variation noted for the previous two periods was two per cent. Further, it may be noted that the average basis weight results for Mills D, E, I, L, Q, and S are higher than those for the Institute, the average results for Mills B and J are the same, and the average results for the other mills are lower. Only the variation of five per cent noted for Mill L appears to be excessive.

The maximum variation in caliper for the current period is four per cent. This variation is comparable to the maximum variation for the

previous two periods--namely, six per cent. Compared with the Institute's test results, the test results for Mills B and I are higher, the test results for Mills O and Q are the same, and those for the other mills are lower. None of the variations appear to be excessive.

It may be noted in Table XXIV that the bursting strength results exhibit a maximum variation of six per cent for the current period. The average results for Mills B, F, ^{for} H, J, K, M, O, and S are higher than those for the Institute, the results for Mills A, G, and I are the same, and the results for the other mills are lower. The variations noted for Mills D, E, and L appear to be somewhat excessive.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills A, B, F, K, L, O, Q, and S are higher than those for the Institute, whereas the results for the other mills are lower. The maximum variation for the current period is eighteen per cent. The differences encountered for Mills G and Q appear to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills A, B, C, E, F, I, J, K, L, O, P, Q, and S are higher than those for the Institute, and the average results for the other mills are lower. The maximum variation for the current period is nineteen per cent. The variation noted for Mill S appears to be excessive.

TABLE XXIII

SUMMARY OF TEST RESULT COMPARISONS
(Average Mill and Institute Results)

No. Samples Compared	A	B	C	D	E	F	G	H	Mills*		K	L	M	Vul													
									I	J				O	P	Q	S										
																		8	2	2	1	9	0	2	8	4	4
Basis Weight																											
Caliper																											
Bursting Strength																											
Tearing Strength, In																											
Tearing Strength, Across																											
Institute Mill Av. Diff.** Max. Diff.***	43.0 42.7 -0.3 -1.1	43.4 43.4 0.0 -0.7	43.0 42.0 -1.0 -1.5	42.5 42.8 +0.3 +0.5	42.4 43.2 +0.8 +0.9	43.6 42.9 -0.7 -1.6	44.2 43.5 -0.7 -0.9	43.0 42.6 -0.4 -0.9	42.6 42.8 +0.2 +0.5	43.1 43.1 0.0 -0.5	43.7 43.3 -0.4 -0.4	41.2 43.1 +1.9 +1.9	44.2 43.8 -0.4 -1.3	-- -- -- --	43.9 43.4 -0.5 -0.6	43.1 42.6 -0.5 -1.2	43.5 44.0 +0.5 +0.8	42.6 42.3 +0.2 +0.5									
	12.3 12.1 -0.2 -0.3	12.2 12.4 +0.2 +0.9	13.4 12.9 -0.5 -0.9	11.6 11.4 -0.2 -0.2	13.0 12.9 -0.1 -0.2	12.8 12.3 -0.5 -0.8	14.0 13.4 -0.6 -0.7	12.0 11.7 -0.3 -0.5	12.2 12.3 +0.1 +0.5	12.2 11.8 -0.4 -0.5	13.3 12.9 -0.4 -0.5	12.0 11.7 -0.3 -0.3	12.9 12.6 -0.3 -0.7	-- -- -- --	13.1 13.1 0.0 -0.1	13.0 12.5 -0.5 -0.9	13.4 13.4 0.0 +0.3	12.0 11.7 -0.3 -0.5									
	110 110 0 -5	109 110 +1 +4	116 110 -6 -13	116 109 -7 -9	108 102 -6 -7	109 112 +3 +7	106 106 0 -3	106 110 +4 +10	110 110 0 +4	105 106 +1 +4	106 111 +5 +9	112 105 -7 -7	109 110 +1 +10	109 107 -2 -6	-- -- -- --	112 116 +4 +5	109 107 -2 -6	103 104 -4 -6	105 108 +3 +3								
	300 316 +16 +43	344 347 +3 +29	306 283 -23 -36	346 325 -21 -31	339 332 -7 -24	320 349 +29 +67	328 269 -59 -72	377 363 -14 -36	319 314 -5 -23	335 333 -2 -8	362 380 +18 -21	309 335 +26 -26	357 333 -24 -61	-- -- -- --	293 314 +21 +30	317 314 -3 +63	364 414 +50 +77	362 386 +24 +54									
Institute Mill Av. Diff.** Max. Diff.***	369 389 +20 +36	371 398 +27 +46	372 373 +1 +9	386 373 -13 -25	344 353 +9 +23	359 389 +30 +66	372 347 -25 -38	398 392 -6 +20	362 371 +9 +29	344 381 +37 +45	390 424 +34 +43	364 384 +20 +20	376 368 -8 -30	-- -- -- --	351 381 +30 +33	352 353 +1 +46	374 416 +42 +73	402 430 +78 +39									

* Comparison based on averages involved only those samples on which mill test data were submitted.
** Average difference is the difference between the Institute mill average and the mill average based on mill test data.
*** Maximum difference encountered in comparing the Institute average and the mill average for any sample submitted by that particular mill.

TABLE XXIV

COMPARISON OF INSTITUTE-MILL DIFFERENCES BY PERIODS
Average Difference, per cent

Mill	Period	Basis Weight	Caliper	Bursting Strength	Tearing In	Strength, Across
A	Current	-0.7	-2	0	+5	+5
	112th	-1	-2	-4	+5	+8
	111th	-2	-2	-0.9	+3	+8
B	Current	0	+2	+0.9	+0.9	+7
	112th	+0.7	-0.8	+2	-6	-2
	111th	+2	-0.8	+0.9	-4	+3
C	Current	-2	-4	-5	-8	+0.3
	112th	-2	-4	-3	-4	+1
	111th	-2	-0.8	-3	-6	+3
D	Current	+0.7	-2	-6	-6	-3
	112th	+1	-2	-4	-5	+0.8
	111th	--	--	--	--	--
E	Current	+2	-0.8	-6	-2	+3
	112th	+2	-3	-4	+4	+9
	111th	--	--	--	--	--
F	Current	-2	-4	+3	+9	+8
	112th	-1	-2	+6	+10	+11
	111th	-1	-2	+4	+9	+5
G	Current	-2	-4	0	-18	-7
	112th	-1	-3	-2	-12	-4
	111th	-0.5	-3	-0.9	-14	-3
H	Current	-0.9	-2	+4	-4	-2
	112th	-1	-5	+2	-4	-1
	111th	-2	-4	+2	-2	+2
I	Current	+0.5	+0.8	0	-2	+2
	112th	+0.7	-2	+2	-3	+3
	111th	+0.5	-6	+4	-6	-1
J	Current	0	-3	+1	-0.6	+11
	112th	-0.5	-3	0	+0.3	+10
	111th	-0.7	-2	+6	+1	+8
K	Current	-0.9	-3	+5	+5	+1
	112th	-0.5	-0.8	+6	0	+8
	111th	-0.9	-4	+4	-3	+5
L	Current	+5	-2	-6	+8	+5
	112th	--	--	--	--	--
	111th	+0.7	-5	+3	+12	+10
M	Current	-0.9	-2	+0.9	-7	-2
	112th	-0.2	-2	+3	-4	+3
	111th	-0.2	-2	-2	+1	+4
N	Current	--	--	--	--	--
	112th	-0.2	-3	0	+8	+7
	111th	0	-3	-4	+5	+8
O	Current	-1	0	+4	+7	+0
	112th	+0.2	+0.8	+2	+5	+7
	111th	-0.5	0	+0.9	+8	+6
P	Current	-1	-4	-2	-0.9	+0.3
	112th	-1	-4	-3	-3	-0.3
	111th	-2	-5	-3	+0.6	+0.3
Q	Current	+1	0	-4	+14	+11
	112th	+0.7	-3	-1	+14	+13
	111th	-2	-6	+0.9	-0.9	+4
S	Current	+0.5	-2	+3	+7	+19
	112th	--	--	--	--	--
	111th	-0.9	-0.8	0	+6	+18

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956

TABLE XXV

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		Elmendorf Tear, g./sheet		Across	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Diff.	IPC	Mill Diff.
172561	W.F.S	11/ 3/56	1	42.8	+0.1	12.3	12.2	-0.1	112	111	-1	299 ^a	333
172539	W.F.S	11/ 6/56	1	43.7	-0.9	12.2	12.1	-0.1	109	109	0	279	327
172747	W.F.S	11/15/56	1	42.3	+0.3	12.4	12.1	-0.3	106	110	+4	310	305
172761	W.F.S	11/17/56	1	42.7	-0.1	12.3	12.1	-0.2	108	110	+2	307	311
172762	W.F.S	11/19/56	1	43.8	-1.1	12.2	12.1	-0.1	114	109	-5	305	304
Current Mill Average:				43.0	-0.3	12.3	12.1	-0.2	110	110	0	300	316
												369	389
												373 ^a	409
												373 ^a	405
												369 ^a	379
												363 ^a	382
												365 ^a	371
													+ 6

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

172687	W.F.	11/ 3/56	2	42.8	+0.4	12.4	12.8	+0.4	105	109	+4	348 ^a	333	-15	362 ^a	381	+19
172688	W.F.	11/ 3/56	2	43.7	-0.2	11.9	12.8	+0.9	104	108	+4	344	323	-21	366 ^a	380	+14
172763	W.F.	11/ 5/56	2	43.9	-0.1	12.1	12.3	+0.2	113	109	-4	325 ^a	344	+19	347 ^a	391	+44
172764	W.F.	11/ 6/56	2	43.9	-0.7	12.4	12.2	-0.2	113	113	0	373 ^a	371	- 2	403 ^a	419	+16
172765	W.F.	11/13/56	2	44.0	0.0	12.2	12.3	+0.1	112	113	+1	355 ^a	384	+29	381 ^a	427	+46
172766	W.F.	11/14/56	2	42.2	+0.6	12.4	12.2	-0.2	108	106	-2	317	328	+11	367 ^a	387	+20
Current Mill Average:				43.4	0.0	12.2	12.4	+0.2	109	110	+1	344	347	+ 3	371	398	+27

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XXVII

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet	
				IPC	Mill	Diff.	IPC	Mill	Diff.	In	Across
172365	W.F.	10/ 8/56	1	43.4	41.9	-1.5	13.2	12.7	-0.5	121	108
172366	W.F.	10/11/56	1	43.4	42.6	-0.8	13.4	12.8	-0.6	115	108
172367	W.F.	10/15/56	1	41.9	41.5	-0.4	13.1	12.9	-0.2	112	108
172368	W.F.	10/19/56	1	43.7	42.2	-1.5	13.4	13.0	-0.4	111	108
172369	W.F.	10/24/56	1	42.0	41.7	-0.3	13.4	12.9	-0.5	114	108
172370	W.F.	10/28/56	1	43.4	42.0	-1.4	13.9	13.0	-0.9	121	117
Current Mill Average:				43.0	42.0	-1.0	13.4	12.9	-0.5	116	110
										283	283
										306	306
										-23	-23
										372	372
										-9	-9
										382	382
										-1	-1
										393	393
										+1	+1
										340	340
										+9	+9
										-2	-2
										354	354
										+9	+9
										380	380
										-2	-2
										371	371
										-13	-13

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

172387	W.F.	10/ 1/56	4	42.6	42.8	+0.2	11.6	11.4	-0.2	112	107	-5	335 ^a	315	369	+5
172388	W.F.	10/17/56	4	42.7	43.1	+0.4	12.0	11.8	-0.2	117	108	-9	351 ^a	331	384	-12
172389	W.F.	10/13/56	4	42.3	42.8	+0.5	11.4	11.3	-0.1	116	112	-4	355 ^a	324	369	-18
172390	W.F.	10/13/56	4	42.5	42.7	+0.2	11.2	11.1	-0.1	118	111	-7	343	331	371	-25
Current Mill Average:				42.5	42.8	+0.3	11.6	11.4	-0.2	116	109	-7	346	325	373	-13

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XXIX

MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet								
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	In	Across	IPC	Mill	Diff.	
172383	WFLS	10/31/56	2	42.8	43.7	+0.9	13.4	13.2	-0.2	99	94	- 5	360 ^a	336	-24	348 ^a	338	-10
172384	WFLS	11/ 1/56	2	41.9	42.7	+0.8	12.6	12.6	0.0	117	110	- 7	318 ^a	328	+10	340 ^a	368	+28
Current Mill Average:				42.4	43.2	+0.8	13.0	12.9	-0.1	108	102	- 6	339	332	- 7	344	353	+ 9

TABLE XXX

MILL F -- 42-LB. LINERBOARD

172426	W.F.	10/28/56	1	43.4	42.9	-0.5	12.9	12.3	-0.6	105	112	+7	314	341	+27	367 ^a	379	+12
172427	W.F.	10/29/56	1	44.2	43.7	-0.5	12.5	12.1	-0.4	110	115	+5	310	377	+67	369 ^a	423	+54
172503	W.F.	11/4/56	2	42.9	42.5	-0.4	12.6	12.1	-0.5	104	108	+4	309	324	+15	366 ^a	362	-4
172504	W.F.	11/5/56	1	43.1	42.8	-0.3	12.5	12.1	-0.4	110	109	-1	304 ^a	332	+28	345 ^a	370	+25
172724	W.F.	11/14/56	1	43.9	43.0	-0.9	13.1	12.7	-0.4	111	112	+1	349	349	0	372 ^a	399	+27
172725	W.F.	11/16/56	2	43.8	42.2	-1.6	13.0	12.2	-0.8	110	111	+1	319 ^a	365	+46	337 ^a	403	+66
172767	W.F.	11/18/56	2	43.9	42.8	-1.1	13.1	12.7	-0.4	112	113	+1	323	358	+35	361 ^a	392	+31
172768	W.F.	11/19/56	2	44.0	43.6	-0.4	12.6	12.4	-0.2	107	113	+6	333 ^a	347	+14	357 ^a	381	+24
Current Mill Average:				43.6	42.9	-0.7	12.8	12.3	-0.5	109	112	+3	320	349	+29	359	389	+30

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XXXI

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet		Across	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Diff.	IPC	Mill Diff.
172531	W.F.	10/22/56	1	43.6	-0.5	13.7	13.0	106	+2	335 ^a	-62	379 ^a	-32
172532	W.F.	10/23/56	1	44.4	-0.6	14.5	13.8	102	+1	334	-60	359 ^a	-21
172505	W.F.	10/23/56	1	45.6	-0.7	14.4	13.7	104	-3	337	-58	394 ^a	-38
172506	W.F.	10/24/56	1	43.9	-0.9	14.0	13.4	107	+2	316	-39	373	-21
172533	W.F.	10/30/56	1	44.7	-0.8	14.2	13.6	104	+2	318	-52	379 ^a	-34
172534	W.F.	11/ 2/56	1	44.6	-0.8	13.6	13.2	108	-1	339	-72	381 ^a	-33
172535	W.F.	11/ 3/56	1	43.8	-0.9	13.9	13.2	109	+2	321 ^a	-64	363 ^a	-17
172536	W.F.	11/ 4/56	1	43.0	-0.8	13.5	13.0	104	+2	321 ^a	-63	349 ^a	-5
Current Mill Average:				44.2	-0.7	14.0	13.4	106	0	328	-59	372	-25

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XXVII
Dickinsonville
MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		In		Elmendorf Tear, g./sheet		Across	
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
172369	W.B.	10/17/56	-	41.4	41.7	+0.3	11.3	11.1	-0.2	109	112	+3	381 ^a	364	-14
172370	W.B.	10/19/56	-	42.0	41.8	-0.2	11.6	11.2	-0.4	107	105	-2	346 ^a	367	-4
172540	W.B.	10/29/56	-	42.7	42.3	-0.4	12.1	11.7	-0.4	106	109	+3	347	395 ^a	-20
172541	W.B.	10/30/56	-	43.6	42.7	-0.9	12.2	11.8	-0.4	105	114	+9	386 ^a	375	-11
172542	W.B.	10/31/56	-	43.2	42.5	-0.7	12.1	11.8	-0.3	110	117	+7	383 ^a	397	-20
172543	W.B.	11/ 6/56	-	43.7	43.1	-0.6	12.5	12.0	-0.5	96	106	+10	394 ^a	412	+9
172689	W.B.	11/ 6/56	-	43.8	43.0	-0.8	12.1	12.0	-0.1	110	115	+5	391	405 ^a	-4
172690	W.B.	11/ 8/56	-	43.7	43.3	-0.4	12.3	12.2	-0.1	102	107	+5	383	399 ^a	+20
172691	W.B.	11/ 9/56	-	43.4	42.9	-0.5	12.2	12.1	-0.1	104	104	0	381 ^a	397	-8
Current Mill Average:				43.0	42.6	-0.4	12.0	11.7	-0.3	106	110	+4	377	392	-6

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XXXIII

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet	
				IPC	Mill	IPC	Mill	IPC	Mill	In	Across
					Diff.		Diff.		Diff.	IPC	Mill
172367	W.F.	10/13/56	1	43.0	+0.4	12.9	13.1	104	+2	321	316
172368	W.F.	10/15/56	2	42.2	+0.4	11.2	11.2	113	-4	296	309
172399	W.F.	10/18/56	2	41.8	+0.4	11.1	11.6	110	0	302 ^a	297
172400	W.F.	10/25/56	1	42.2	+0.5	12.5	12.7	109	+1	321 ^a	315
172391	W.F.	10/25/56	1	42.2	+0.1	12.3	12.6	114	-4	327 ^a	327
172392	W.F.	10/29/56	2	43.0	0.0	12.5	12.6	111	+4	333 ^a	315
172393	W.F.	10/30/56	2	43.1	-0.1	12.4	12.5	112	0	320 ^a	297
172562	W.F.	10/31/56	2	43.2	+0.2	12.7	12.5	109	+1	332 ^a	337
Current Mill Average:				42.6	+0.2	12.2	12.3	110	0	319	314
										- 5	+ 9
										362	371
											+ 9

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XXXIV

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		IPC		In		IPC		Elmendorf Tear, g./sheet		Across	
				IPC	Diff.	IPC	Diff.	IPC	Diff.	IPC	Diff.	IPC	Diff.	IPC	Diff.	IPC	Diff.	IPC	Diff.
172537	W.F.	10/29/56	-	43.5	+0.4	12.2	11.9	-0.3	109	106	- 3	343 ^a	335	343 ^a	- 8	344 ^a	389	445	+45
172538	W.F.	10/29/56	-	42.7	-0.5	12.2	11.7	-0.5	102	106	+ 4	327 ^a	330	327 ^a	+ 3	344 ^a	373	429	+29
Current Mill Average:				43.1	0.0	12.2	11.8	-0.4	105	106	+ 1	335	333	335	- 2	344	381	437	+37

TABLE XXXV

MILL K -- 42-LB. LINERBOARD

172371	S.F.	10/26/56	7	43.0	-0.4	12.7	12.2	-0.5	112	112	0	365 ^a	386	365 ^a	+21	382 ^a	425	443	+43
172672	S.F.	11/14/56	7	44.3	-0.3	13.9	13.6	-0.3	101	110	+ 9	359 ^a	373	359 ^a	+14	398 ^a	424	426	+26
Current Mill Average:				43.7	-0.4	13.3	12.9	-0.4	106	111	+ 5	362	380	362	+18	390	424	434	+34

TABLE XXXVI

MILL L -- 42-LB. LINERBOARD

172709	W.F.	11/15/56	1	41.2	+1.9	12.0	11.7	-0.3	112	105	- 7	309	335	309	+26	364 ^a	384	420	+20
Current Mill Average:				41.2	+1.9	12.0	11.7	-0.3	112	105	- 7	309	335	309	+26	364	384	420	+20

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XXXVII

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across
172380	W.F.	10/31/56	-	44.5	44.4 -0.1	13.0	12.4 -0.6	112	113 + 1	360 ^a	361
172381	W.F.	11/ 1/56	-	43.5	43.3 -0.2	13.1	12.8 -0.3	108	106 - 2	352	369
172382	W.F.	11/ 2/56	-	44.0	43.1 -0.9	13.2	12.9 -0.3	110	110 0	380 ^a	384
172528	W.F.	11/ 7/56	-	43.8	43.6 -0.2	12.4	12.0 -0.4	106	116 +10	357 ^a	363
172529	W.F.	11/ 8/56	-	44.9	44.7 -0.2	12.7	12.0 -0.7	115	113 - 2	357 ^a	380
172530	W.F.	11/ 9/56	-	42.7	41.4 -1.3	12.6	12.5 -0.1	103	103 0	345 ^a	351
172577	W.F.	11/14/56	4	44.4	43.9 -0.5	13.3	12.9 -0.4	112	110 - 2	341 ^a	361
172678	W.F.	11/15/56	4	44.4	44.2 -0.2	12.8	12.5 -0.3	108	110 + 2	383 ^a	377
172679	W.F.	11/16/56	4	45.6	45.7 +0.1	13.2	13.0 -0.2	107	107 0	341 ^a	369
Current Mill Average:				44.2	43.8 -0.4	12.9	12.6 -0.3	109	110 + 1	357	368
										-24	- 8

TABLE XXXVIII

Volcanita
MILL N -- 42-LB. LINERBOARD

No Samples Submitted

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XXXIX

MILL O -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		Elmendorf Tear, g./sheet	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across
172397	W.F.	10/29/56	1	43.6	43.1 -0.5	13.1	13.1 0.0	111	116 + 5	297	309
172398	W.F.	11/1/56	1	44.2	43.6 -0.6	13.2	13.1 -0.1	114	115 + 1	289 ^a	319
Current Mill Average:				43.9	43.4 -0.5	13.1	13.1 0.0	112	116 + 4	293	314
										351	381
										+12	377
										+30	386
										+21	+30

TABLE XL

MILL P -- 42-LB. LINERBOARD

172363	WFIS	10/24/56	1	42.5	43.2 +0.7	12.7	12.7 0.0	112	106 - 6	296	359	340 ^a	385	+45
172364	WFIS	10/24/56	1	42.9	42.9 0.0	12.7	12.5 -0.2	111	107 - 4	297	354	341 ^a	387	+46
172394	WFIS	10/26/56	1	43.6	42.4 -1.2	12.8	12.2 -0.6	113	111 - 2	324 ^a	305	351 ^a	334	-17
172395	WFIS	10/28/56	1	43.1	42.3 -0.8	13.0	12.4 -0.6	109	109 0	342	316	363 ^a	353	-10
172396	WFIS	10/28/56	1	43.4	42.6 -0.8	13.4	12.5 -0.9	107	106 - 1	313	273	352 ^a	317	-35
172502	WFIS	11/5/56	1	43.1	42.7 -0.4	13.1	12.8 -0.3	107	108 + 1	315 ^a	333	355 ^a	355	0
172726	WFIS	11/17/56	1	43.5	42.5 -1.0	13.1	12.5 -0.6	103	103 0	317	289	364 ^a	350	-14
172727	WFIS	11/17/56	1	43.0	42.3 -0.7	13.0	12.3 -0.7	109	106 - 3	333	285	348 ^a	343	- 5
Current Mill Average:				43.1	42.6 -0.5	13.0	12.5 -0.5	109	107 - 2	317	314	352	353	+ 1

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XLI

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet		Across Mill Diff.
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Diff.	
172385	W.	10/11/56	4	44.1	+0.7	13.8	13.6 -0.2	109	104 -5	386 ^a	424 +38	405 ^a 423 +18
172386	W.	10/24/56	4	44.3	-0.1	13.5	13.2 -0.3	110	107 -3	354	371 +17	376 ^a 393 +17
172673	W.	10/30/56	4	42.7	+0.8	13.2	13.2 0.0	108	105 -3	375 ^a	441 +66	361 ^a 419 +58
172674	W.	11/ 7/56	4	42.8	+0.8	13.2	13.5 +0.3	104	98 -6	341 ^a	418 +77	357 ^a 430 +73
Current Mill Average:				43.5	+0.5	13.4	13.4 0.0	108	104 -4	364	414 +50	374 416 +42

TABLE XLII

MILL S -- 42-LB. LINERBOARD

172563	WFLS	11/ 3/56	1	42.8	+0.1	11.7	11.4 -0.3	109	107 -2	348 ^a	368 +20	412 ^a 480 +68
172684	WFLS	11/ 6/56	1	42.2	+0.5	12.2	11.9 -0.3	100	108 +8	347 ^a	401 +54	384 ^a 473 +89
172685	WFLS	11/10/56	1	43.1	+0.1	12.1	11.9 -0.2	107	105 -2	397 ^a	383 -14	401 ^a 464 +63
172686	WFLS	11/ 9/56	1	42.2	0.0	12.2	11.7 -0.5	105	112 +7	357 ^a	394 +37	413 ^a 501 +88
Current Mill Average:				42.6	+0.2	12.0	11.7 -0.3	105	108 +3	362	386 +24	402 480 +78

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--NOVEMBER 1 THROUGH NOVEMBER 30, 1956 (continued)

TABLE XLIII

MILL R -- MISCELLANEOUS

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across

47-lb. Drum Linerboard

No Samples Submitted